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Application No. 10/679,441 Amendment dated January 5, 2007 Reply to Office Action of October 5, 2006

Docket No.: 3722-0163P

AMENDMENTS TO THE CLAIMS

- 1. (Original) A shock detector for an opical disc recorder, the shock detector comprising:
- a first detecting unit for detecting an amplitude of a first kind of reference signal filtered and for outputting a first detecting signal;
- a second detecting unit for detecting a level of a second kind of reference signal and outputting a second detecting signal;
- a third detecting unit for detecting a revolution of a third kind of reference signal and outputting a third detecting signal; and
- a judging unit for receiving the first, the second and the third detecting signals, and for enabling a shock signal when the first, the second and the third detecting signals are simultaneously enabled.
- 2. (Original) The shock detector according to claim 1, wherein the first detecting unit comprises:
- a band-pass filter for receiving the first kind of reference signal and outputting a first eigenvalue; and

hysteresis comparators for receiving the first eigenvalue, enabling the first detecting signal when the first eigenvalue is greater than a first ligh threshold value or smaller than a second low threshold value, and disabling the first detecting signal when the first eigenvalue is smaller than a first low threshold value and greater than a second high threshold value;

wherein the first low threshold value is greater than the second high threshold value.

- 3. (Original) The shock detector according to claim 1, wherein the first detecting unit comprises:
- a band-pass filter for receiving the first kind of reference signal and outputting a first eigenvalue; and

comparators for receiving the first eigenvalue, enabling the first detecting signal when the

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first eigenvalue is greater than a first threshold value or smaller than a second threshold value, and disabling the first detecting signal when the first eigenvalue is smaller than the first threshold value and greater than the second threshold value;

wherein the first threshold value is greater than the second threshold value.

- 4. (Original) The shock detector according to claim 2, wherein the first kind of reference signal is a tracking error signal.
- 5. (Original) The shock detector according to claim 2, wherein the first kind of reference signal is a focusing error signal.
- 6. (Original) The shock detector according to claim 2, wherein the first kind of reference signal is a central error signal.
- 7. (Original) The shock detector according to claim 1, wherein the second detecting unit comprises:
- a low-pass filter for receiving the second kind of reference signal and outputting an average value;
- a subtracter for computing differences between the second kind of reference signal and the average value and outputting the difference as a second eigenvalue; and
- a hysteresis comparator for receiving the second eigenvalue, enabling the second detecting signal when the second eigenvalue is greater than a third high threshold value, and disabling the second detecting signal when the second eigenvalue is smaller than a third low threshold value.
- 8. (Original) The shock detector according to claim 1, wherein the second detecting unit comprises:
- a low-pass filter for receiving the second kind of reference signal and outputting an average value;

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- a subtracter for computing differences between the second kind of reference signal and the average value and outputting the difference as a second eigenvalue; and
- a comparator for receiving the second eigenvalue, enabling the second detecting signal when the second eigenvalue is greater than a third threshold value, and disabling the second detecting signal when the second eigenvalue is smaller than the third threshold value.
- 9. (Original) The shock detector according to claim 7, wherein the second kind of reference signal is a sub-beam sum signal.
- 10. (Original) The shock detector according to claim 7, wherein the second kind of reference signal is a RF ripple signal.
- 11. (Original) The shock detector according to claim 1, wherein the third detecting unit comprises:
- a counter for receiving the third kind of reference signal and outputting revolution length of the third kind of reference signal;
 - an averaging unit for receiving the revolution length and generating an average signal;
- a subtracter for computing difference between the revolution length and the average signal, and outputting the difference as a third eigenvalue; and
- a hysteresis comparator for receiving the third eigenvalue, enabling the third detecting signal when the third eigenvalue is greater than a fourth high threshold value, and disabling the third detecting signal when the third eigenvalue is smaller than a fourth low threshold value.
- 12. (Original) The shock detector according to claim 1, wherein the third detecting unit comprises:
- a counter for receiving the third kind of reference signal and outputting revolution length of the third kind of reference signal;

an averaging unit for receiving the revolution length and generating an average signal; a subtracter for computing difference between the revolution length and the average

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signal, and outputting the difference as a third eigenvalue; and

a comparator for receiving the third eigenvalue, enabling the third detecting signal when the third eigenvalue is greater than a fourth threshold value, and disabling the third detecting signal when the third eigenvalue is smaller than the fourth threshold value.

- 13. (Original) The shock detector according to claim 11, wherein the third kind of reference signal is a spindle motor rotating frequency identifying signal.
- 14. (Original) The shock detector according to claim 1, wherein the judging unit is an AND gate.
- 15. (Currently amended) A method for controlling optical disc recording according to a shock signal to keep the recording quality, [the shock signal being enabled while a shock level is greater a threshold.] the method comprising the steps of:

detecting an amplitude of a first kind of reference signal filtered and outputting a first detecting signal:

detecting a level of a second kind of reference signal and outputting a second detecting signal;

detecting a revolution of a third kind of reference signal and outputting a third detecting signal; and

enabling the shock signal when the first, the second and the third detecting signals are simultaneously enabled, otherwise disabling the shock signal;

executing normal recording process when the shock signal is disabled and a recording mode is a normal mode;

changing the recording mode as an interrupt mode and enabling an interrupt recording process when the shock signal is enabled and the recording mode is the normal mode; and

detecting the shock signal when the shock signal is enabled during the interrupt mode;

changing the recording mode as the normal mode and enabling a link recording process

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when the shock signal is disabled during the interrupt mode.

- 16. (Original) The method according to claim 15, further comprising the step of setting a servo-loop with a high gain when the recording mode is the interrupt mode.
- 17. (Original) The method according to claim 16, further comprising the step of setting a servo-loop with a normal gain when the recording mode is the normal mode.
- 18. (Original) The method according to claim 15, further comprising the step of storing N blocks of encoded buffer data when the interrupt recording process is enabled.
- 19. (Original) The method according to claim 18, further comprising the step of starting recording the stored N blocks of encoded buffer data from the N-th block prior to a stop-writing position.
 - 20. (Canceled)
 - 21. (Canceled)
- 22. (Currently amended) [The shock detector according to claim 21, wherein the detecting unit comprises:] A shock detector for an optical disc recorder, the shock detector comprising:

a detecting unit for detecting a revolution of a reference signal and outputting a detecting signal a shock signal wherein the reference signal is a spindle motor rotating frequency identifying signal;

wherein the detecting unit comprises:

a counter for receiving the reference signal and outputting revolution length of the reference signal;

an averaging unit for receiving the revolution length and generating an average signal;

a subtracter for computing difference between the revolution length and the average

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signal, and outputting the difference as an eigenvalue; and

- a hysteresis comparator for receiving the eigenvalue, enabling the detecting signal when the eigenvalue is greater than a high threshold value, and disabling the detecting signal when the eigenvalue is smaller than a low threshold value.
- 23. (Currently amended) [The shock detector according to claim 21, wherein the detecting unit comprises:] A shock detector for an optical disc recorder, the shock detector comprising:
- a detecting unit for detecting a revolution of a reference signal and outputting a detecting signal a shock signal wherein the reference signal is a spindle motor rotating frequency identifying signal;

wherein the detecting unit comprises:

- a counter for receiving the reference signal and outputting revolution length of the reference signal;
 - an averaging unit for receiving the revolution length and generating an average signal;
- a subtracter for computing difference between the revolution length and the average signal, and outputting the difference as an eigenvalue; and
- a comparator for receiving the eigenvalue, enabling the detecting signal when the eigenvalue is greater than a threshold value, and disabling the detecting signal when the eigenvalue is smaller than the threshold value.
 - 24. (Canceled)